A Guide to Performance Data

MassDOT/MBTA Office of Performance Management and Innovation (OPMI)

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Key Words

Performance Data

OPMI defines performance data as information that describes how well the system is operating. The data contains metrics that allow users to compare dates, modes, and routes in a consistent way. The data sets within the category, currently Customer Satisfaction and Reliability, evaluate the service provided against the service promised or expected.

Customer Satisfaction

Every month the MBTA surveys a panel of its customers about their experience on our services. The survey asks customers to rate both individual aspects of their trip, and their overall experience. Reported metrics include satisfaction with the MBTA overall, with the MBTA's communication, with reliability, and with a respondent's most recent trip. Read more about these metrics in the "How We Measure Customer Satisfaction" section.

Reliability

Reliability is a category of metrics that compare service operated to service promised by the MBTA. The exact metric used for determining reliability varies by mode and is further explained in the "How We Calculate Reliability" section.

Schedule Adherence

The reliability metric used for bus and commuter rail. Calculated as either the percentage of buses that depart a terminal or key stop within the specified departure allowance or the percentage of trains that arrive at their final destination within the arrival allowance. Defined as how well vehicles are performing compared to the expected frequency of service for its route.

Key Words

Time Period	Times
Very Early Morning	3am-5:59am
Early AM	6am-6:59am
AM Peak	7am-8:59am
Midday Base	9am-1:29pm
Midday School	1:30pm-3:59pm
PM Peak	4pm-6:29pm
Evening	6:30pm-9:59pm
Late Evening	10pm-11:59pm
Night	12am-2:59am

Service Day

An MBTA service date is defined as 3:00 am – 2:59 am (2:59 am the next day).

Time Period

According to the MBTA Service Delivery Policy, there are nine time periods for service on weekdays, shown in the table to the right. Saturdays and Sundays are measured separately for most standards.

Peak Hour

According to the MBTA Service Delivery Policy, there are two distinct intervals for “rush hour.” Morning rush hour, or AM_PEAK, is from 7:00 am to 8:59 am, and evening rush hour, or PM_PEAK, is from 4:00 pm to 6:29 pm.

Passenger Wait Time

The reliability metric used for heavy and light rail service. Defined as the percent of passengers traveling in each time period that wait the scheduled headway, or less, at each station.

Season

Most of our ridership files contain averages from our fall rating. Ratings are the four times a year that the MBTA makes major schedule changes, but are not necessarily the same as the calendar seasons. Fall is generally September through December.

How We Calculate Reliability

We use a few different metrics to determine the “reliability” of the MBTA system, based on the mode.

Light and Heavy Rail

Since subway service (Red, Blue, Orange, and Green lines) runs frequently through most of the day, we know our customers don’t rely on printed schedules, but expect a train to show up within a few minutes. So, if we schedule trains to arrive every 5 minutes, but some customers wait for 6 because the train is delayed, we consider service to be unreliable for those customers.

Passenger Wait Time

The percent of customers who waited less than the scheduled time between trains.

Bus

The reliability measurement for bus service is dependent upon the frequency of service on a particular route. Some buses come frequently, and customers simply expect to have a reasonable wait, while others come less frequently, and customers rely on catching a specific bus at a specific time. Bus service is measured at both ends of the route and key stops (those listed in the schedule) along the way, and what is considered reliable depends on how frequently the buses run.

Schedule Adherence

If a bus is supposed to come every 15 minutes or less, reliability is measured as a bus must depart no more than 3 minutes later than the expected interval between buses.

For buses scheduled less frequently than every 15 minutes, a bus must depart no more than 1 minute earlier nor 6 minutes later than the scheduled time of day.

How We Calculate Reliability

We use a few different metrics to determine the “reliability” of the MBTA system, based on the mode.

Commuter Rail

While on-time performance in the MBTA’s contract with its commuter rail operator removes delays that are outside of the operator’s control (such as a late Amtrak train delaying trains behind it), the performance statistics on the portal do include those delays.

Schedule Adherence

Percent of trains that arrive at their final destination no more than 4 minutes and 59 seconds after they’re scheduled to arrive.

The RIDE

The RIDE is an on-demand travel service, unbound by tracks or stops, so trip lengths and schedules vary daily. Trips can be scheduled 1-7 days in advance and the on-time metric is calculated daily using these scheduled trips.

Percent On-time Trips

Percent of completed trips where customers were picked up no later than 15 minutes after the scheduled pickup time.

Ferry

We publish on-time performance for each ferry route (F1, F2H, and F4). These values are aggregated to the month and year of service.

Percent On-time Trips

Percent of trips that depart and arrive within five minutes of scheduled times.

How We Calculate Satisfaction

Every month, we survey a panel of customers about their experience on our services.

The survey asks respondents to rate various aspects of their most recent trip, as well as rating the MBTA overall. The panel includes riders of all fixed-route transit modes (bus, light and heavy rail, commuter rail, and ferry), and is weighted so that each mode is accurately represented with regards to how much of our total ridership it makes up. We report the percent of customers who choose each answer option in response to four key questions:

1. How satisfied are you with the MBTA's communication overall?
2. How would you rate the MBTA overall?
3. How would you rate your most recent trip?
4. How much do you agree with the statement:
   The MBTA provides reliable public transportation services.

Survey responses are recorded on a 7-point scale. Possible responses range from extremely negative ("Extremely Dissatisfied" or "Strongly Disagree") to extremely positive ("Extremely Satisfied" or "Strongly Agree.")

Extremely Dissatisfied	Very Dissatisfied	Somewhat Dissatisfied	Neutral	Somewhat Satisfied	Very Satisfied	Extremely Satisfied
Strongly Disagree	Disagree	Slightly Disagree	Neither Agree nor Disagree	Slightly Agree	Agree	Strongly Agree

Suggested Use Cases

Use Case	File Name	Metric	Years Available	Aggregation
Find how passengers rated the MBTA for a month Ex. *What part of service did users rate the highest in January 2020?* Ex. *What is the overall satisfaction rating for March 2020?*	Customer Satisfaction	Satisfaction	2016-2020	MM/YY
Find reliability metrics by mode and line for a particular day, week, month, etc. Ex. *Which bus route had the highest reliability on weekends in April 2020?* Ex. *How reliable was the Red Line in January 2020?*	Bus, Rapid Transit, Commuter Rail Reliability	Passenger Wait Time & Schedule Adherence	2016-2020	DD/MM/YY, mode, route, peak/ off-peak
Find reliability of the MBTA paratransit service Ex. *How many RIDE trips were completed on-time in January 2020?*	The RIDE Reliability	On-time trips	2015-2020	DD/MM/YY
Find reliability of the MBTA Ferry service Ex. *Which ferry route was the most reliable in July 2019?*	Ferry Reliability	On-time trips	2018-2019	MM/YY